Stuttgarter Beiträge zur Naturkunde
Serie A (Biologie)

Herausgeber:

Staatliches Museum für Naturkunde, Rosenstein 1, D-70191 Stuttgart

Stuttgarter Beitr. Naturk.	Ser. A	Nr. 663	12 S., 6 Abb.	Stuttgart, 14. VI. 2004

New data on zoogeography and taxonomy of the African species of the genus *Sivacrypticus* Kaszab (Coleoptera: Archeocrypticidae)

Martin Lillig

Abstract

This paper presents new localities of the African species of the genus *Sivacrypticus* Kaszab, 1964, considerably extending the known distribution areas of some species. *S. tanganyikanus* Kaszab, 1971 is redescribed, and its male genitalia are illustrated for the first time. Distribution maps are provided for all treated species. Distribution patterns of the African representatives of the genus are discussed. A checklist of all known species of the genus is provided, including information about the original description, synonyms and distribution.
Keywords: Coleoptera, Archeocrypticidae, *Sivacrypticus*, Africa, zoogeography, checklist.

Zusammenfassung

Neue Funde der afrikanischen Arten aus der Gattung *Sivacrypticus* Kaszab, 1964 werden vorgestellt. Dadurch erweitert sich das bekannte Verbreitungsgebiet einiger Arten erheblich. Die Beschreibung von *S. tanganyikanus* Kaszab, 1971 wird ergänzt und das männliche Genital dieser Art erstmals abgebildet. Zu allen behandelten Arten wird eine Verbreitungskarte gegeben, und Verbreitungstypen der afrikanischen Vertreter der Gattung werden diskutiert. In einem Katalog werden alle bekannten Arten der Gattung mit Angaben zur Originalbeschreibung, zu Synonymen und Verbreitung aufgeführt.

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1 Introduction

The status of the Archeocrypticini has been controversial for a long time. The group was first placed as a tribe Archeocrypticini in the proximity of Crypticini (Kaszab 1964), but its genus *Enneboeus* Waterhouse, 1878 was placed by Gebien (1938–1942) in the Diaperini. Ardoin (1969), describing a new species from West Africa, retained the Archeocrypticini within the Tenebrionidae. Watt (1974: 387) considered several larval and imaginal characteristics and raised the status of the tribe Archeocrypticini to the family level as Archeocrypticidae. However Kaszab (1975, 1979, 1981, 1984) continued to refer to the group as part of the Tenebrionidae and denied their status as a separate family. Other authors (including Ardoin 1980, Doyen et al. 1989, Lawrence 1977, 1994, Masumoto & Yin 1993, Matthews 1987, Merkl 1988, Triplehorn & Wheeler 1979) preferred to follow Watt's opinion. According to Lawrence (1977), the Archeocrypticidae are more closely related to the Pterogeniidae than to the Tenebrionidae, and also have a close relationship to the Ciidae, Tetratomidae and Mycetophagidae. Lawrence (1994) gave a detailed description of the larval and imaginal characteristics. An excellent key to the species of the genus *Sivacrypticus* has been provided by Kaszab (1979).

The biology of the Archeocrypticidae is largely unknown. The larvae of the genus *Enneboeus* Waterhouse are known to live in leaf litter and consume rotting plant parts (Lawrence 1977).

Archeocrypticidae are caught using Tullgren's and Berlese's apparatus, occasionally also with light (Matthews 1987), by sifting of soil litter (Schawaller, personal communication) or with pitfall traps. Some Australian species have been collected on fungi of the family Polyporaceae (Lawrence 1994).

There are scanty collection reports of the species of the genus so far. The examination of hitherto unpublished material shows that most species of this genus are widely distributed over the continent.

Acronyms of repositories

CL	Collection Martin Lillig, Saarbrücken, Germany
MHNG	Muséum d'Histoire naturelle, Genève, Switzerland
MRAC	Musée Royal de l'Afrique Centrale, Tervuren, Belgium
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany
TM	Transvaal Museum, Pretoria, Republic of South Africa
TMB	Természettudományi Muzeum, Budapest, Hungary
ZfB	Zentrum für Biodokumentation, Landsweiler-Reden, Germany
ZSM	Zoologische Staatssammlung, München, Germany

Acknowledgements

For the loan of types and other specimens, I would like to thank Dr. Ottó Merkl (Budapest), Dr. Martin Baehr (Munich), Dr. Ivan Löbl and Dr. Giulio Cuccodoro (both Geneva), Dr. Marc de Meyer (Tervuren), Dr. Harald Schreiber (Landsweiler-Reden), Dr. Wolfgang Schawaller (Stuttgart) and Mrs. Ruth Müller (Pretoria). Thanks are extended to Prof. Dr. Peter Nagel (Basel) and Dr. Wolfgang Schawaller (Stuttgart) for the critical reading of the manuscript and for valuable comments, and to Dr. Ronald Fricke (Stuttgart) for the linguistic revision.

2 Methods

This paper is based on material of several museums and the author's collection. The specimens could be examined during the visits at the Zoologische Staatssammlung Munich, the Staatliches Museum für Naturkunde Stuttgart and the Zentrum für Biodokumentation, Landsweiler-Reden. Furthermore the beetles could be studied for many months due to the kindness of the borrowers.

The label text is quoted from the original labels as they are pinned to the specimens.

3 African species of *Sivacrypticus* Kaszab, 1964

3.1 *Sivacrypticus latipes* Kaszab, 1979 (map Fig. 1)

Studied type material: Sudan, Prov. Darfur, El Fasher, 730 m, ad lucem, 2.IX.1976, H. J. Bremer leg. (1 paratype MRAC, 2 paratypes ZSM).

New records: Elfenbeinküste, Kafolo/Comoé, 25.IV.1988, leg. F.-T. Krell (5 ex. SMNS). – Elfenbeinküste, Ferkessédougou, 19.IV.1988, leg. F.-T. Krell (1 ex. SMNS). – Côte d'Ivoire, Badénou/M'Bengué, 1982, Dister, Huschens, Summkeller (1 ex. ZfB). – Ober-

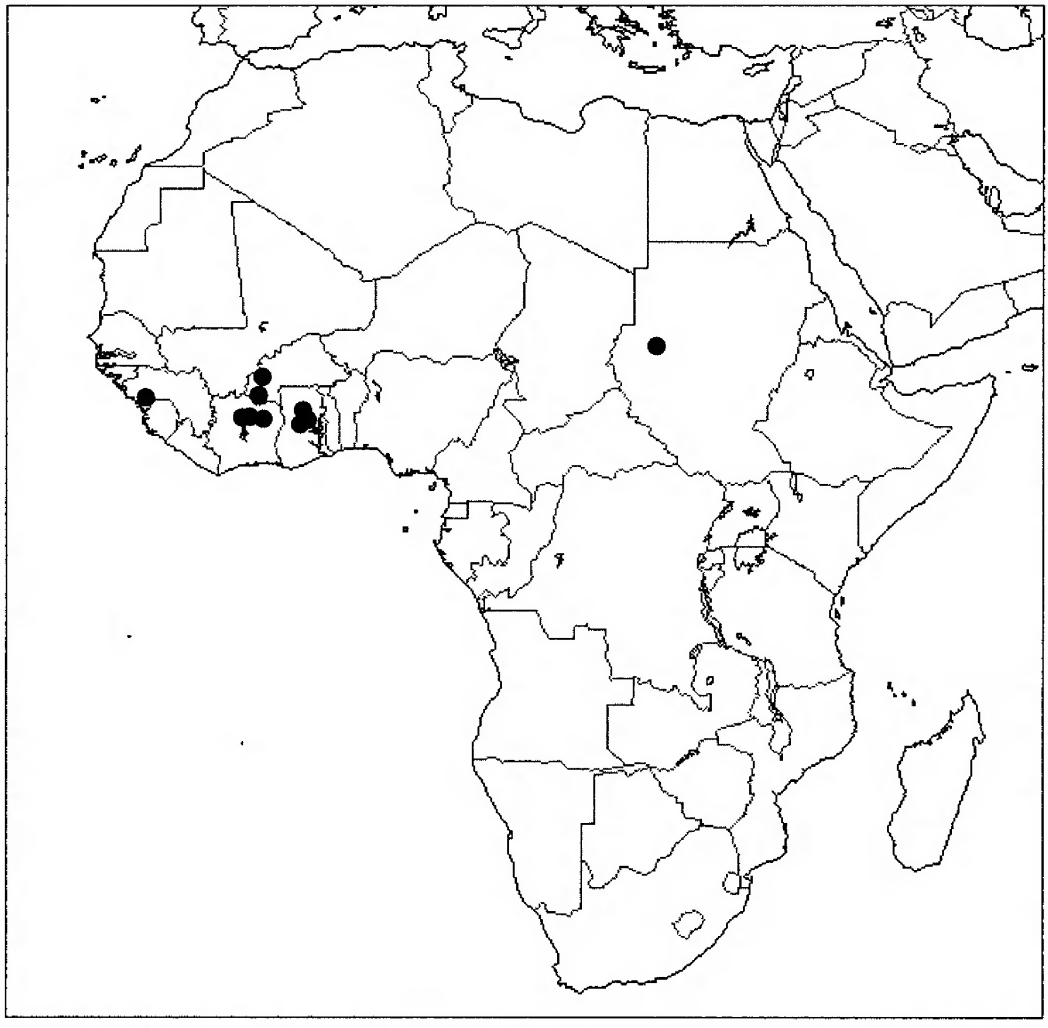


Fig. 1. Distribution of *Sivacrpyticus latipes* Kaszab (●).

volta, 10 km SE Tiefora, Galeriewald am Sinlo, 11.I.–19.II.82, NAGEL, SCHREIBER, KALMUND (38 ex. ZfB). – Obervolta, 10 km SE Tiefora, Galeriewald am Sinlo, 10.I.–25.II.83, H. SCHREIBER, M. PAULUS (26 ex. ZfB). – Obervolta, 10.58N 4.50W, 10 km SE Tiefora, Galeriewald am Sinlo, 18.I.–10.II.84, H. SCHREIBER, M. BIEGEL (6 ex. ZfB). – Obervolta, 10 km E Dérégoué, Savanne, Bodenfalle, 26.I.–22.II.82, H. SCHREIBER, M. PAULUS (1 ex. ZfB). – Obervolta, 4 km NE Dérégoué, Galeriewald am Koba, Bodenfalle, 10.I.–25.II.82, H. SCHREIBER, M. PAULUS (120 ex. ZfB). – Ghana, Bagjamze, 8.I.1969, leg. B. ENTZ (1 ex. TM).

Remarks: *Sivacrypticus latipes* is widespread throughout the savanna belt from Guinea to Sudan. It is very abundant in the gallery forests of Burkina Faso and of the Ivory Coast, where it was collected by means of pitfall traps.

3.2 *Sivacrypticus enigmaticus* Kaszab, 1969 (map Fig. 2)

Studied type material: Soil-Zoological Exp., Congo-Brazzaville, Kindamba, Méya, Bangou forest / 31.X.1963, No. 51, sifted litter, leg. ENDRÖDY-YOUNGA (1 paratype ZSM).

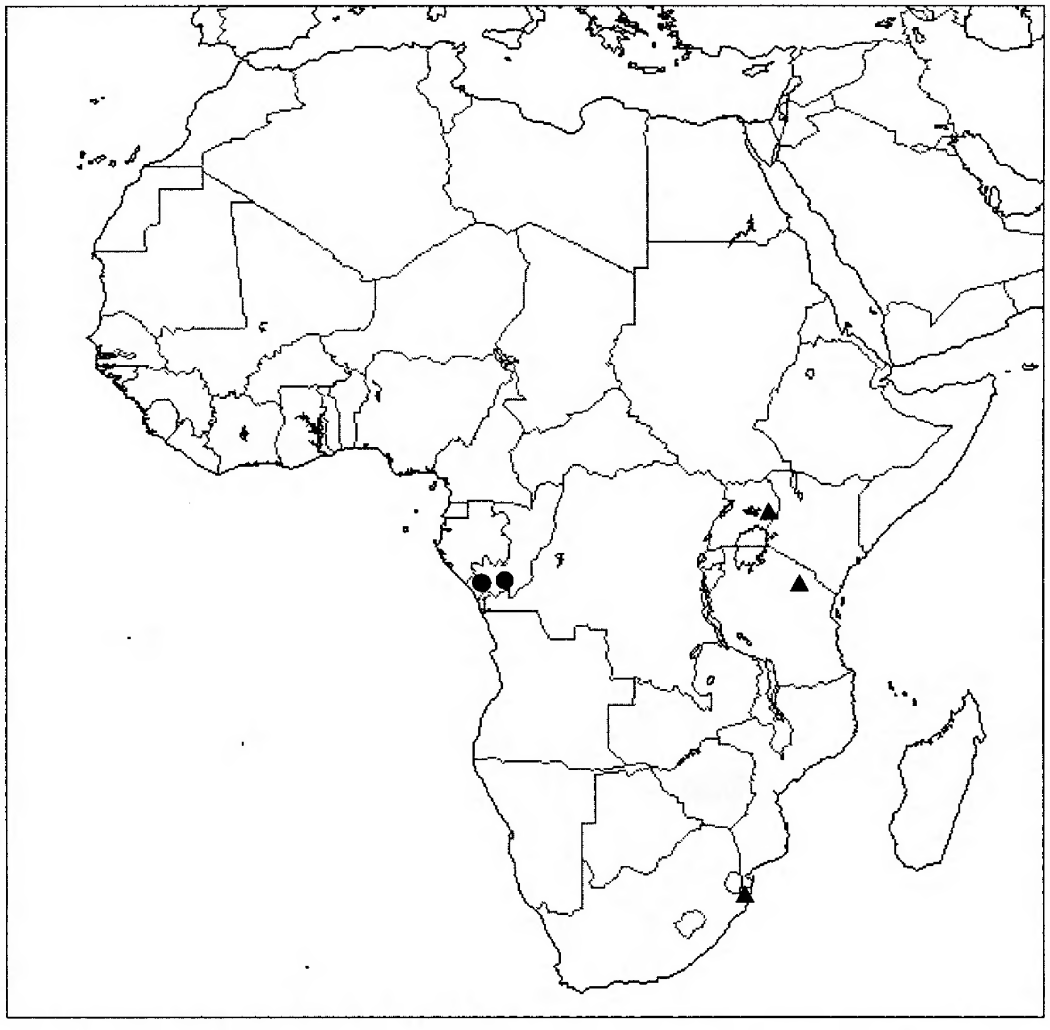


Fig. 2. Distribution of *Sivacrpyticus enigmaticus* Kaszab (●) and *S. szunyoghyi* Kaszab (▲).

3.3 *Sivacrypticus szunyoghyi* Kaszab, 1971 (map Fig. 2)

New records: Uganda, Mt. Elgon, Sipi, 1750 m, 31.V.1993, CUCCODORO & ERNE # 178 (1 ex. MHNG). – South Africa, RSA, KwaZulu-Natal, Kosi Bay Nature Reserve, 11.–17.VI.2002, leg. W. SCHAWALLER (1 ex. SMNS).

Remarks: This species was described on the basis of two specimens collected at the Usa River, Tanzania. Hitherto, no further records have been published.

3.4 *Sivacrypticus congoanus* Kaszab, 1969 (map Fig. 3)

Studied type material: Soil-Zoological Exp., Congo-Brazzaville, Brazzaville, ORSTOM park / 19.X.1963, No. 10, sifted compost, leg. ENDRÖDY-YOUNGA (holotype TMB). – 27.XII.1963. No. 533, beaten and singled, leg. BALOGH & ZICSI / Soil-Zoological Exp., Congo-Brazzaville, Brazzaville, ORSTOM park (1 paratype TMB). – Soil-Zoological Exp., Congo-Brazzaville, Brazzaville, ORSTOM park / 18.X.1963, No. 3, singled in park, leg. ENDRÖDY-YOUNGA (1 paratype ZSM).

New record: Ghana, Tafo, I-1968, E. O. BOAFO (1 ex. ZMB).

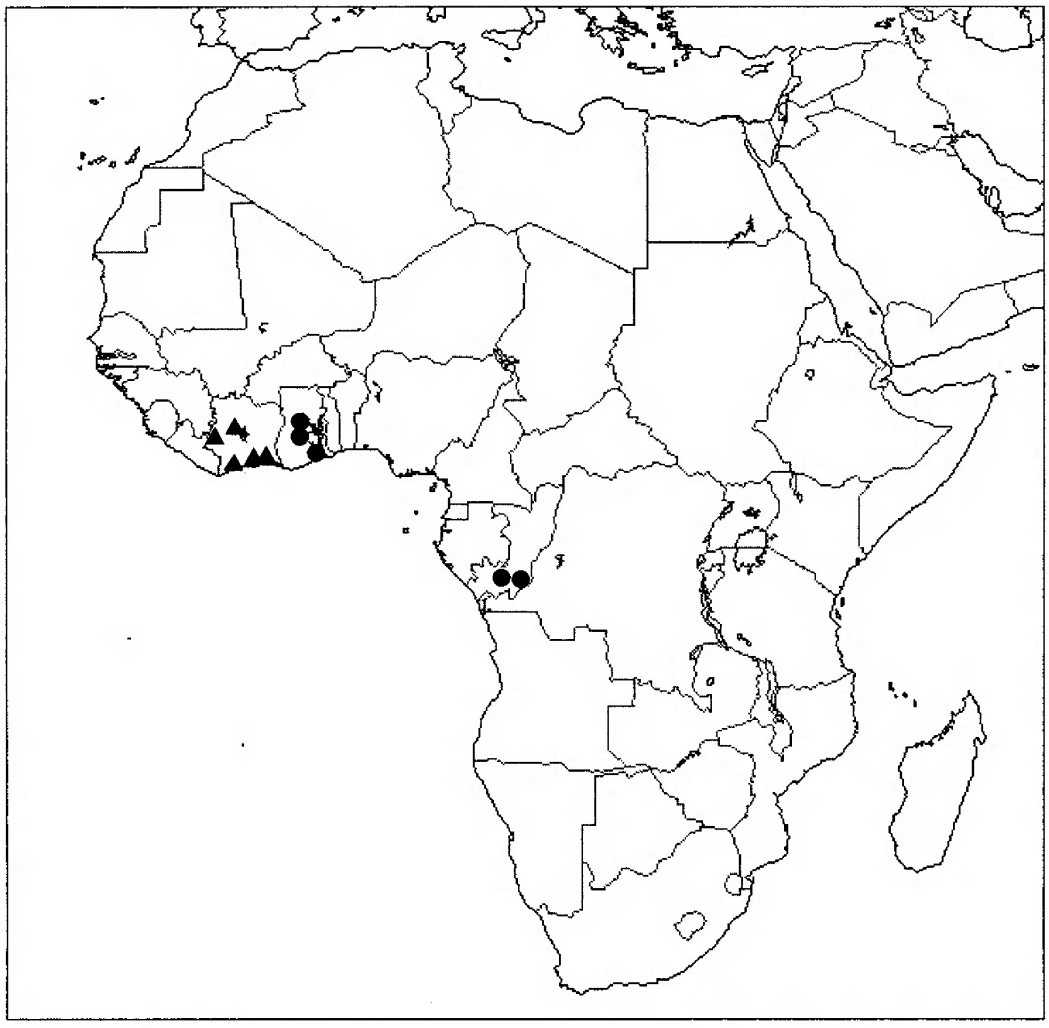


Fig. 3. Distribution of *Sivacrpyticus congoanus* Kaszab (●) and *S. murinus* Kaszab (▲).

Remarks: The holotype was labelled as "*Sivacrypticus congoensis*" by KASZAB but published as "*Sivacrypticus congoanus*" (KASZAB 1969). The specimen from Ghana well agrees with the three Brazzaville specimens.

3.5 *Sivacrypticus murinus* Ardoin, 1969 (map Fig. 3)

Studied type material: Bingerville I.1962, J. DECELLE, Ivory Coast / *Sivacrypticus murinus* n. sp., P. ARDOIN 1967 (holotype MRAC). – Bingerville IV.1961, XI.1961, I.1962, II.1962, 1.–12.III.1962, 15.–31.III.1962, IV.1962, IX.1962, XII.1962, I.1963, II.1963, 1.–18.IV.1963, I.1964, II.1964, III.1964, IV.1963, J. DECELLE, Ivory Coast / *Sivacrypticus murinus* n. sp., P. ARDOIN 1967 (29 paratypes MRAC). – Ivory Coast, Bingerville X.1962, J. DECELLE (1 paratype TMB).

New records: Elfenbeinküste, Adiopodoumé, 10.IV.1988, leg. F.-T. KRELL (1 ex. SMNS). – Côte d'Ivoire, Adiopo-Doumé, 29.X.80, MAHNERT-PERRET (1 ex. TMB). – Côte d'Ivoire, Marahoué Ranch bei Mankono, 15.XI.–15.XII.1981 / W [= Wald, forest] / DISTER, NAGEL, SUMMKELLER (1 ex. ZfB).

Remarks: ARDOIN (1980) listed samples from Adiopodoumé and the surroundings of Man and Sassandra, Ivory Coast. – KASZAB (1979) had no males at his disposal. Since the two samples from Adiopo-Doumé and from the Marahoué Ranch are females, the males remain unknown. – This species was previously known only from the coastal area and the surroundings of Man, i. e. the tropical rainforest. The sample from the Guinean savanna near Mankono originated from a closed half evergreen rainforest island surrounded by savanna. Also numerous species of butterflies of the evergreen rainforest islands can be found near the coast (SUMMKELLER, personal communication).

3.6 *Sivacrypticus tanganyikanus* Kaszab, 1971 (Figs. 5–6; map Fig. 4)

Studied type material: Tanganyika, Usa River, 3900 feet, Coll. Dr. J. SZUNYOGHY / light trap, 15.XI.–31.XII.1965 (female holotype and 1 paratype TMB).

New records: Malawi S, Masenjere env. (80 km S of Blantyre), 21.–22.XII.2001, J. BEZDĚK leg. (11 ex. SMNS, 3 ex. CL). – S Africa, North Prov., KNP, Pafuri, S 22.26 E 31.12, 5.–7.XII.1997, S. BILÝ leg. (28 ex. CL). – S Africa, North Prov., Waterberg; S 24.22 E 27.33, Geelhoudbosh farm, S. BILÝ leg.; 15.–18.XI.1997 (34 ex. CL). – RSA, KwaZulu-Natal, Kosi Bay Nature Reserve, 11.–17.XI.2002, leg. W. SCHAWALLER (4 ex. SMNS). – RSA, KwaZulu-Natal, Tembe Elefant Park, 17.–19.XI.2002, leg. W. SCHAWALLER (2 ex. SMNS, 1 ex. CL). – S.Afr., Zululand, St. Lucia, Mission Rk., 28.22 S – 32.25 E / 9.XII.1975, E-Y: 965, UV light collection, leg. ENDRÖDY-YOUNGA (1 ex. TM). – S.Afr., E.Transvaal, Barberton, 10 km N, 25.44 S – 30.59 E / 24.X.1986, E-Y: 2308, groundtraps, 31 days, leg. ENDRÖDY-YOUNGA / ground traps with meat bait (1 ex. TM). – S.Afr., Natal, Charters Creek / 21.I.1990, leg. J. KLIMASZEWSKI (1 ex. TM). – S.Afr., KrugerNat.Pk, Skukuza-Sabi River, 24.57 S – 31.42 E / 22.II.1995, E-Y: 3111, riverinefor. litter, leg. ENDRÖDY-YOUNGA (12 ex. TM). – S.Afr., KrugerNat.Pk, Pafuri research, ca 22.25 S – 31.12 E / 26.I.1995, E-Y: 3100, UV light & trap, leg. C. L. BELLAMY (23 ex. TM). – S.Afr., Zulu coast, Sodwana Bay, 27.35 S – 32.39 E / 23.XI.1992, E-Y: 2848, UV light. N of camp, leg. ENDRÖDY-YOUNGA (23 ex. TM). – S.Afr., N Zululand, Nduma Game Reserve, 26.54 S – 32.17 E / 1.XII.1992, E-Y: 2868, groundtraps, 5 days, leg. ENDRÖDY-YOUNGA / groundtrap with faece bait (1 ex. TM). – S.Afr., N Zululand, Nduma Game Reserve, 26.54 S – 32.16 E / 12.VI.1989, E-Y: 2614, gallery forest litter / ENDRÖDY & KLIMASZEW. (3 ex. TM). – S.Afr., Mapumalanga, Hazyview, 25.04 S – 31.07 E / 27.I.1996, E-Y: 3207, sift. forest litter, leg. ENDRÖDY-YOUNGA (2 ex. TM). – S.Afr., N Province, Mapaphuli Cyas Res, 24.48 S – 30.37 E / 28.I.1998, E-Y: 3319, sifting, leg. R. MÜLLER (2 ex. TM). – S.Afr., Mozambique, Pomene, 22.59 S – 35.35 E / 4.V.1974, E-Y: 355, litt. in coast humm., leg. A. STRYDOM (2 ex. TM). – 10.X.1975, groundtraps 29, leg. RUSSELL-SMITH / Botswana, Okavango, Makwee lagoon (1 ex. TM). – Karskul, S. Angola, IX.1951, C. KOCH (1 ex. TM).

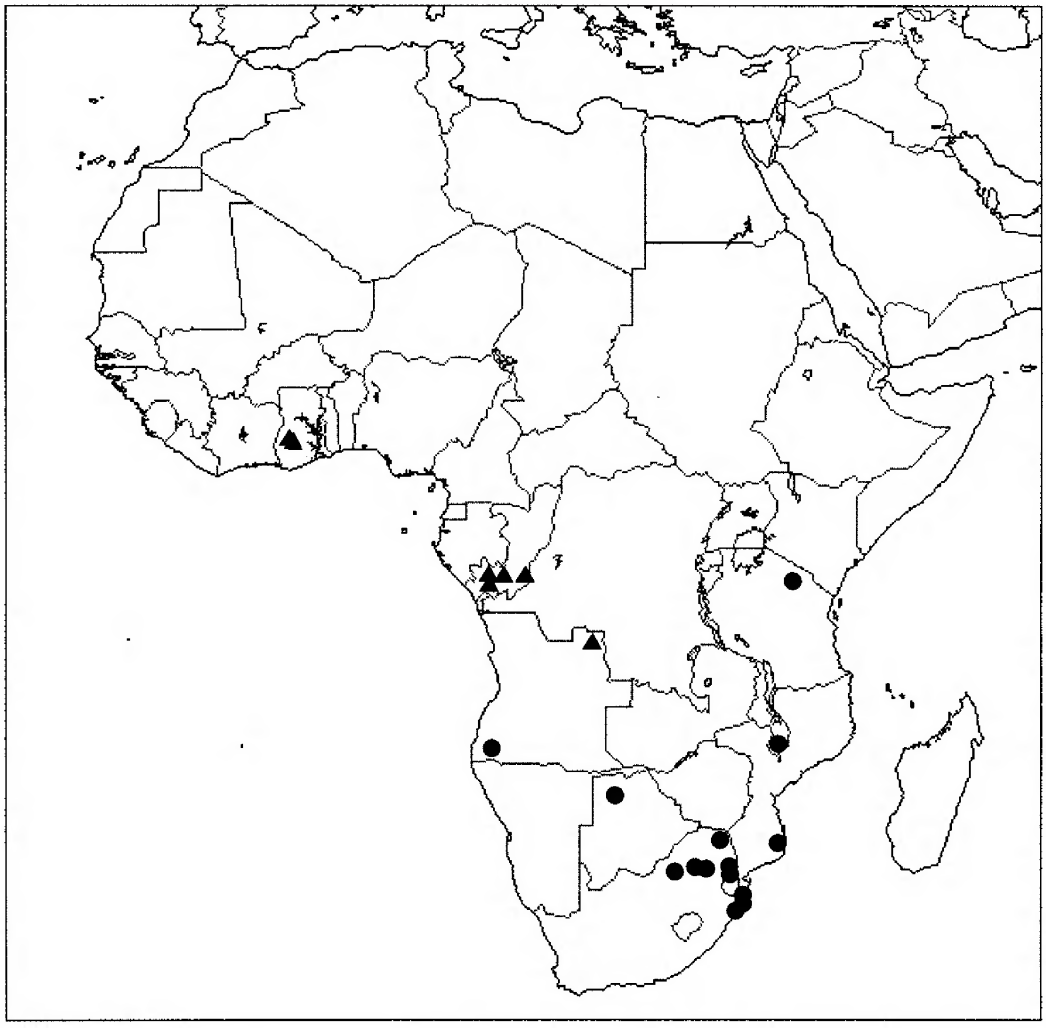


Fig. 4. Distribution of *Sivacrpyticus tanganyikanus* Kaszab (●) and *S. ardoini* Kaszab (▲).

Remarks: The specimens from Malawi, Mozambique, South Africa, Botswana and Angola do not show any external characteristics that can be used to differentiate them from the Tanzania females. All records are therefore regarded as conspecific. East African males are needed to prove the identity. The large series from southern Africa including numerous males allows an extension of the description by KASZAB:

Size: Length 2.1–2.8 mm. Width 1.1–1.5 mm.

Colour: Light to dark brown; body edges and posterior border of the pronotum somewhat lighter, appendages reddish. Surface appears dull due to dense shagreened sculpture. Setae grey-yellowish, labrum lighter and clypeus dark coloured

Setae: Upper and lower body parts covered with very thin, but closely set setae. Setae depressed, orientated backwards.

Body shape: Ovoid, largest width at the shoulders.

Head: Transversally vaulted. Densely punctate. Labrum transversal, covered with setae. Clypeus frontally straight, clypeal suture complete. Genae short. Eyes coarse-

ly faceted, distance between the eyes, as seen from above, about 4.5 times broader than the eye width. Antennal club composed of 3 flattened terminal segments.

Prothorax: Convex, almost as wide as long. Prothorax densely, but somewhat more finely punctate than the head. Anterior border almost straight, anterior corners somewhat protuberant. Lateral edges curved, narrower anteriorly than posteriorly. Base almost weakly double bulged. Lateral margination slightly narrows towards the posterior part. Anterior and posterior edges unbordered.

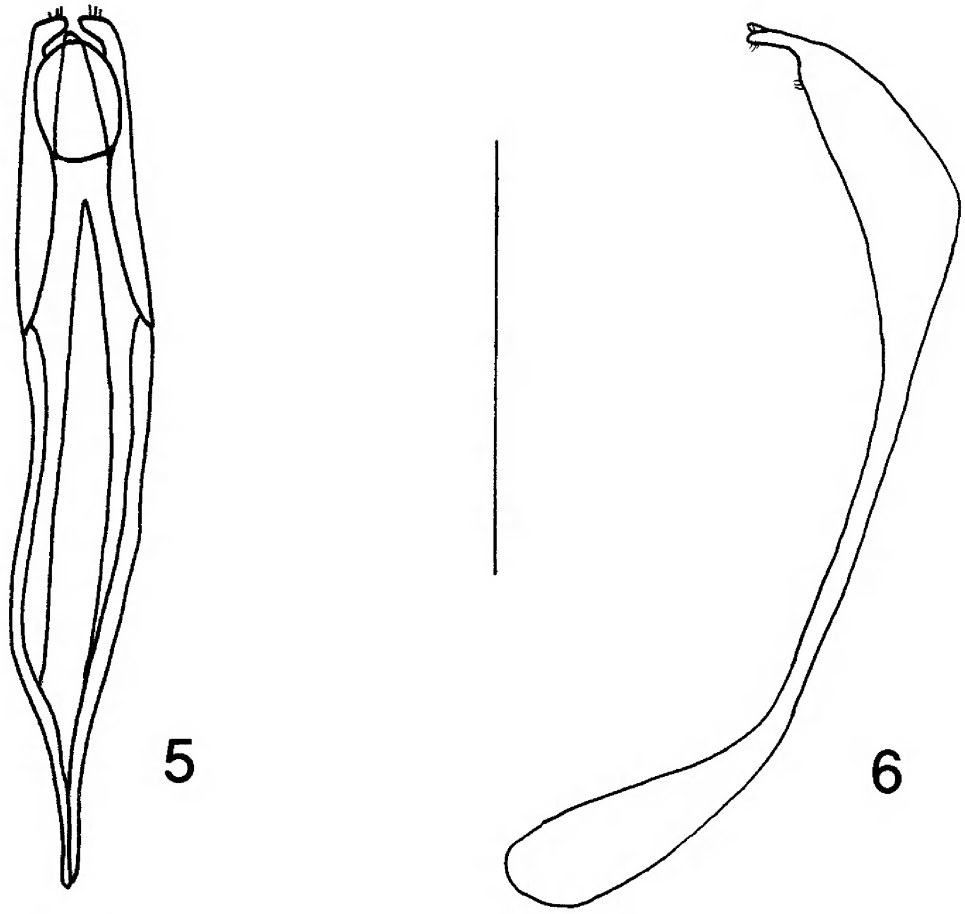
Scutellum: Small, flat, almost semicircular, very finely and densely punctate.

Alae: Posterior wings fully developed.

Elytra: Convex. Ratio length to width about 10:8. Base of elytra as wide as base of pronotum. Maximum width at the shoulders, rounder and narrower towards apex. Punctation much more pronounced here than on the pronotum, frontally irregular, laterally and backwards forming regular rows. Punctation smoother towards the apex. Scutellar interspace, 3rd, 5th and 7th intervals without punctation and slightly vaulted.

Prosternum: Prosternal apophysis flat, not depressed and projecting far behind the fore coxae, apically regularly widened, apex rounded.

Mesosternum: Very short. Punctate.



Figs. 5–6. *Sivacrypticus tanganyikanus* Kaszab. **1.** Aedeagus, dorsal view. **2.** Aedeagus, lateral view. – Scale: 1 mm.

Metasternum: Punctate in a more extensive, but also more pronounced fashion than on mesosternum.

Sternite: Punctation scarcely visible. Last abdominal sternite almost without an excision in males and with a flat one only in females.

Legs: Flattened. Protibiae widened. Tarsal formula 5-5-4, 1st segment of the metatarsi as long as the others together. In males, pro- and mesotarsi widened.

Aedeagus: See Figs. 5–6.

Diagnosis: Pro- and mesotarsi widened in males, laterally and apically pronounced rows of punctations on elytra. Sutural row apically not deepened. – This species differs from *S. ardoini* Kaszab in the absence of an apically deepened row of punctures on the elytra and differs from all other African species in the presence of a pronounced punctation on the elytra.

3.7 *Sivacrypticus ardoini* Kaszab, 1969 (map Fig. 4)

Studied type material: Soil-Zoological Exp., Congo-Brazzaville, Brazzaville, ORSTOM park / 17.XI.1963, light trap, leg. ENDRÖDY-YOUNGA (3 paratypes TMB, 1 paratype ZSM); same data, but 19.XI.1963 (1 paratype TMB); same data, but 20.XI.1963 (2 paratypes TMB). – Soil-Zoological Exp., Congo-Brazzaville, Djoue river / 25.X.1963, No. 28, sifted litter, leg. ENDRÖDY-YOUNGA (1 paratype ZSM). – Soil-Zoological Exp., Congo-Brazzaville, Sibiti IRHO, rainforest / 25.XI.1963, netted on forestborder, leg. ENDRÖDY-YOUNGA (1 paratype ZSM).

New records: Angola, 16901 / *Sivacrypticus* sp., det. KASZAB (2 ex. TMB). – Angola, riv. Tchikapa, 50 km. S. de Dundo, Ang. 913.1 – VII-1948, A. DE BARROS MACHADO (1 ex. ZSM).

Remarks: The species was hitherto known only from Congo-Brazzaville and Ghana (KASZAB 1981). KASZAB (1979) reports a length between 2.3 and 2.6 mm. One of the TMB specimens from Angola "16901" is markedly smaller with a length of 2.15 mm.

4 Zoogeography

The family Archeocrypticidae is consisting of 50 species in 10 genera. They are distributed in South and Central America, the southern parts of North America, Africa south of the Sahara, the Indian subcontinent, southern China, and Australia. This distribution pattern suggests that the family is a classical Gondwana element. Fourteen species of the genus *Sivacrypticus* live in the Oriental Realm, eight in the Ethiopian and one in the Australian Realm, the latter probably having been introduced from Asia (LAWRENCE 1994). Except for the New World, the genus *Sivacrypticus* is to be found all over the distribution range of this family. In Africa, the genus *Sivacrypticus* is the only representative of the family. On the basis of the new findings, three distribution patterns of African *Sivacrypticus* can be distinguished:

Transsahelian distribution
(*S. latipes*)

Numerous insect species are distributed all over the Sahel region: for example, the Paussinae (Carabidae) species *Paussus laevifrons* (Westwood, 1833) or the Tenebrionidae *Zophosis posticalis* Deyrolle, 1867 and *Adesmia antiqua* (Klug, 1830). These are xerophilous species which nevertheless avoid the adjacent desert in the north. In the south, the distribution area is limited by the hylaea. Unlike the above mentioned

species *Sivacrypticus latipes* prefers more humid places within the savanna belt. It does not colonise the open savanna, but is restricted to gallery forests, similar to *Paussus pilosus* Reichensperger, 1957.

West African distribution
(*S. enigmaticus*, *S. congoanus*, *S. murinus*, *S. ardoini*)

These species live in tropical rainforests. Occasionally, they also penetrate into the savanna along the gallery forests. They use the microclimatic conditions of the particular sites. No Archeocrypticidae have been reported yet from the Central African hylaea. Whether or not this is due to a lack of knowledge cannot be judged at present.

Distribution in eastern and southern Africa
(*S. szunyoghyi*, *S. tanganyikanus*)

Two species are distributed from eastern Africa to southern Africa, one extending its area to the south of the rainforests up to the south-west of Angola. These species apparently avoid the dry regions.

5 Threatened species

All African species of the genus live in rainforests, coastal forests, gallery forests or forest islands. Their occurrence therefore directly depends on the conservation of these forests. During the last 35 years gallery forests in Central Africa have spread into the adjacent savannas. One important reason is the increased rural depopulation and, connected to it, the reduction of the stress caused by the breeding of cattle and bushfire. Multitemporal mapping of northern Congo indicates for the northern Guinea-Sudan region a future natural regeneration and expansion of the arborescent vegetation (Runge 2003). Consequently, the distribution area of the rainforest fauna in the northern part of the distribution area of *Sivacrypticus* will possibly expand.

6 Checklist of the species of *Sivacrypticus* Kaszab, 1964

Sivacrypticus Kaszab, 1964 (Kaszab 1964: 384). Type species: *S. taiwanicus* Kaszab, 1964 by original designation.

S. sericans (Fairmaire, 1896) (Fairmaire 1896: 24); India.
Platydema sericans Fairmaire, 1896 (Fairmaire 1896: 24). Type locality: India, Belgaum.
Microcrypticus sericans Gebien, 1939 comb. nov. (Gebien 1939 (1938–1942): 748).
Enneboeus spinifer Champion, 1920 (Champion 1920: 73). Type locality: India, Sarda in Bengal.

S. malabaricus (Champion, 1920) (Champion 1920: 73); India.
Enneboeus malabaricus Champion, 1920 (Champion 1920: 73). Type locality: S India, Malabar.

S. taiwanicus Kaszab, 1964 (Kaszab 1964: 385); Sri Lanka. Type locality: Formosa, Pilam.
S. taivanicus Kaszab, 1975 (Kaszab 1975: 31); lapsus calami.

S. indicus Kaszab, 1964 (Kaszab 1964: 386); Pakistan, India, Nepal, Sri Lanka. Type locality: S India, Ramandorog.

S. ardoini Kaszab, 1969 (Kaszab 1969: 239); Congo-Brazzaville, Ghana, Angola. Type locality: Congo-Brazzaville, Brazzaville (ORSTOM park).

S. congoanus Kaszab, 1969 (Kaszab 1969: 240); Congo-Brazzaville, Ghana. Type locality: Congo-Brazzaville, Brazzaville (ORSTOM park).

S. enigmaticus Kaszab, 1969 (Kaszab 1969: 241); Congo-Brazzaville. Type locality: Congo-Brazzaville, Kindamba, Méya, Bangou Forest.
S. murinus Ardoin, 1969 (Ardoin 1969: 202); Ivory Coast. Type locality: Ivory Coast, Bingerville.
S. tanganyikanus Kaszab, 1971 (Kaszab 1971: 235); Tanzania, Malawi, Mozambique, South Africa, Botswana, Angola. Type locality: Tanzania, Usa River.
S. szunyoghyi Kaszab, 1971 (Kaszab 1971: 235); Uganda, Tanzania, South Africa. Type locality: Tanzania, Usa River.
S. kashmirensis Kaszab, 1975 (Kaszab 1975: 34); India: Kashmir. Type locality: N India, Kashmir, Zabarwon Hill, Pari Mahal.
S. bengalicus Kaszab, 1975 (Kaszab 1975: 34); India: Darjeeling, Assam. Type locality: N India, Darjeeling, below North Point.
S. latipes Kaszab, 1979 (Kaszab 1979: 191); Guinea, Burkina Faso, Ivory Coast, Ghana, Sudan. Type locality: N Ghana, Tamale.
S. loebli Kaszab, 1979 (Kaszab 1979: 196); India, Sri Lanka. Type locality: S India, Madras, Alagarkovil, 21 km N Madurai.
S. vietnamensis Kaszab, 1979 (Kaszab 1979: 198); Vietnam. Type locality: N Vietnam, Mai lam, NE Hanoi.
S. dilliensis Kaszab, 1979 (Kaszab 1979: 200); India: Punjab. Type locality: N India, Punjab, Dilli, Timor.
S. communis Kaszab, 1979 (Kaszab 1979: 202); India. Type locality: S India, Madras, Cardamon H., 6 km NE Kumily near Periyar Power.
S. besucheti Kaszab, 1979 (Kaszab 1979: 203); India. Type locality: S India, Kerala, Nelliampathi Hills, Kaikalty.
S. bremeri Kaszab, 1981 (Kaszab 1981: 111); Thailand. Type locality: NE Thailand, Khon Kaen.
S. greensladei Kaszab, 1984 (Kaszab 1984: 154); southern Australia. Type locality: S Australia, Lake Fox edge.
S. philippinus Merkl, 1988 (Merkl 1988: 71); Philippines. Type locality: Philippines, Manila.
S. uenoi Masumoto & Yin, 1993 (Masumoto & Yin 1993: 241); China: Yunnan. Type locality: S China, Yunnan, Menglun, Xishuangbanna.

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Manuscript received: 3.XII.2003, accepted: 3.III.2004.

ISSN 0341-0145

Autoren-Richtlinien: http://www.naturkundemuseum-bw.de/stuttgart/schriften
Schriftleitung: Dr. Hans-Peter Tschorsnig, Rosenstein 1, 70191 Stuttgart
Gesamtherstellung: Gulde-Druck GmbH, 72072 Tübingen